

## SECTION 01352

### LEED REQUIREMENTS

#### A. General:

1. Furnish all certificates, documentation, action plans, credits, and reports required for BNL to meet LEED requirements.
2. This Project has been designed to achieve the LEED credits as defined in the LEED™ Green Building rating system.

#### B. Summary:

1. This Section includes general requirements and procedures for the Project to meet LEED requirements.
2. See Divisions 1 through 16 for LEED requirements specific to the Work of each of those Divisions.

#### C. Definitions:

1. Chain-of-Custody Certificates: Certificates signed by manufacturers certifying that wood used to make products was obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship." Certificates shall include evidence that manufacturer is certified for chain of custody by an FSC-accredited certification body.
2. LEED: Leadership in Energy & Environmental Design.
3. Rapidly Renewable Materials: Materials made from plants that are typically harvested within a 10-year or shorter cycle. Rapidly renewable materials include products made from bamboo, cotton, flax, jute, straw, sunflower seed hulls, vegetable oils, or wool.
4. Regional Materials: Materials that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles (800 km) of Project site. If only a fraction of a product or material is extracted/harvested/recovered and manufactured locally, then only that percentage (by weight) shall contribute to the regional value.
5. Recycled Content: The recycled content value of a material assembly shall be determined by weight.
  - a. "Post-consumer" material is defined as waste material generated by households or by commercial, industrial, and institutional facilities in their role as end users of the product, which can no longer be used for its intended purpose.

- b. "Pre-consumer" material is defined as material diverted from the waste stream during the manufacturing process. Excluded is reutilization of materials such as rework, regrind, or scrap generated in a process and capable of being reclaimed within the same process that generated it.

D. Submittals:

1. Project Materials Cost Data: Provide statement indicating total cost for building materials used for Project, excluding mechanical, electrical, and plumbing components, and specialty items such as elevators and equipment. Include statement indicating total cost for wood-based materials used for Project. Use Schedule of Values in Supplementary Conditions.
2. LEED Action Plans: Provide preliminary submittals within fourteen (14) days of date established for the Notice to Proceed indicating how the following requirements will be met:
  - a. Credit MR 2.1: Waste Management Plan to divert construction waste from landfill.
  - b. Credit MR 4.1 and Credit MR 4.2: List of proposed materials with recycled content. Indicate cost, post-consumer recycled content, and pre-consumer recycled content for each product having recycled content.
  - c. Credit MR 5.1 and Credit MR 5.2: List of proposed regional materials. Identify each regional material, including its source, cost, and the fraction by weight that is considered regional.
3. LEED Progress Reports: Concurrent with each Application for Payment, submit reports comparing actual construction and purchasing activities with LEED action plans.
4. LEED Documentation Submittals:
  - a. Credit EA 4.0: Product Data for new HVAC equipment indicating absence of HCFC refrigerants.
  - b. Credit MR 2.1: Comply with Division 1 Section 01732 – "Construction Waste Management."
  - c. Credit MR 3.1 and Credit MR 3.2: Receipts for salvaged and refurbished materials.
  - d. Credit MR 4.1 and Credit MR 4.2: Product data and certification letter indicating percentages by weight of post-consumer and pre-consumer recycled content for products having recycled content. Include statement indicating costs for each product having recycled content.
  - e. Credit MR 5.1 and Credit MR 5.2: Product data for regional materials indicating location and distance from Project of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include statement indicating cost for each regional material and the fraction by weight that is considered regional.

- f. Credit MR 7: Product data and chain-of-custody certificates for products containing certified wood. Include statement indicating cost for each certified wood product.
- g. Credit EQ 3.1:
  - 1) Construction indoor-air-quality management plan.
  - 2) Product data for temporary filtration media.
  - 3) Product data for filtration media used during occupancy.
  - 4) Construction Documentation: Six photographs at three different times during the construction period, along with a brief description of the SMACNA approach employed, documenting implementation of the indoor-air-quality management measures, such as protection of ducts and on-site stored or installed absorptive materials.
- h. Credit EQ 3.2:
  - 1) Signed statement describing the building air flush-out procedures including the dates when flush-out was begun and completed and statement that filtration media was replaced after flush-out.
  - 2) Product Data for filtration media used during flush-out and during occupancy.
- i. Credit EQ 4.1: Product data for adhesives and sealants used inside the weatherproofing system indicating VOC content of each product used. Indicate VOC content in g/L calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- j. Credit EQ 4.2: Product Data for interior paints and coatings indicating chemical composition and VOC content.
- k. Credit EQ 4.4: Product data for products containing composite wood or agrifiber products or wood glues indicating that they do not contain urea-formaldehyde resin.
- l. Credit EQ 7: Product Data and Shop Drawings for sensors and control system used to monitor and control room temperature and humidity.

E. Recycled Content of Materials:

- 1. Credit MR 4.1 (and Credit MR 4.2): Provide building materials with recycled content such that post-consumer recycled content plus one-half of pre-consumer recycled content constitutes a minimum of 20 percent of cost of materials used for Project.
  - a. Cost of post-consumer recycled content of an item shall be determined by dividing weight of post-consumer recycled content in the item by total weight of the item and multiplying by cost of the item.

- b. Cost of post-consumer recycled content plus one-half of pre-consumer recycled content of an item shall be determined by dividing weight of post-consumer recycled content plus one-half of pre-consumer recycled content in the item by total weight of the item and multiplying by cost of the item.
- c. Do not include mechanical and electrical components in the calculation.

F. Regional Materials:

- 1. Credit MR 5.1 (and Credit MR 5.2): Provide 20 percent of building materials (by cost) that are regional materials.
- 2. Credit MR 5.1: Provide 20 percent of building materials (by cost) that are regionally manufactured materials.

G. Low-Emitting Materials:

- 1. Credit EQ 4.1: For field applications that are inside the weatherproofing system, use adhesives and sealants that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
  - a. Wood Glues: 30 g/L.
  - b. Metal to Metal Adhesives: 30 g/L.
  - c. Adhesives for Porous Materials (Except Wood): 50 g/L.
  - d. Subfloor Adhesives: 50 g/L.
  - e. Plastic Foam Adhesives: 50 g/L.
  - f. Carpet Adhesives: 50 g/L.
  - g. Carpet Pad Adhesives: 50 g/L.
  - h. VCT and Asphalt Tile Adhesives: 50 g/L.
  - i. Cove Base Adhesives: 50 g/L.
  - j. Gypsum Board and Panel Adhesives: 50 g/L.
  - k. Rubber Floor Adhesives: 60 g/L.
  - l. Ceramic Tile Adhesives: 65 g/L.
  - m. Multipurpose Construction Adhesives: 70 g/L.
  - n. Fiberglass Adhesives: 80 g/L.
  - o. Contact Adhesive: 80 g/L.
  - p. Structural Glazing Adhesives: 100 g/L.

- q. Wood Flooring Adhesive: 100 g/L.
- r. Structural Wood Member Adhesive: 140 g/L.
- s. Special Purpose Contact Adhesive (contact adhesive that is used to bond melamine covered board, metal, unsupported vinyl, Teflon, ultra-high molecular weight polyethylene, rubber or wood veneer 1/16 inch or less in thickness to any surface): 250 g/L.
- t. Top and Trim Adhesive: 250 g/L.
- u. Plastic Cement Welding Compounds: 350 g/L.
- v. ABS Welding Compounds: 400 g/L.
- w. CPVC Welding Compounds: 490 g/L.
- x. PVC Welding Compounds: 510 g/L.
- y. Adhesive Primer for Plastic: 650 g/L.
- z. Sheet Applied Rubber Lining Adhesive: 850 g/L.
- aa. Aerosol Adhesive, General Purpose Mist Spray: 65 percent by weight.
- bb. Aerosol Adhesive, General Purpose Web Spray: 55 percent by weight.
- cc. Special Purpose Aerosol Adhesive (All Types): 70 percent by weight.
- dd. Other Adhesives: 250 g/L.
- ee. Architectural Sealants: 250 g/L.
- ff. Nonmembrane Roof Sealants: 300 g/L.
- gg. Single-Ply Roof Membrane Sealants: 450 g/L.
- hh. Other Sealants: 420 g/L.
- ii. Sealant Primers for Nonporous Substrates: 250 g/L.
- jj. Sealant Primers for Porous Substrates: 775 g/L.
- kk. Modified Bituminous Sealant Primers: 500 g/L.
- ll. Other Sealant Primers: 750 g/L.

2. Credit EQ 4.2: For field applications that are inside the weatherproofing system, use paints and coatings that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24) and the following chemical restrictions:
- a. Flat Paints, Coatings, and Primers: VOC not more than 50 g/L.
  - b. Nonflat Paints, Coatings, and Primers: VOC not more than 150 g/L.
  - c. Anticorrosive and Antirust Paints Applied to Ferrous Metals: VOC not more than 250 g/L.
  - d. Clear Wood Finishes, Varnishes: VOC not more than 350 g/L.
  - e. Clear Wood Finishes, Lacquers: VOC not more than 550 g/L.
  - f. Floor Coatings: VOC not more than 100 g/L.
  - g. Shellacs, Clear: VOC not more than 730 g/L.
  - h. Shellacs, Pigmented: VOC not more than 550 g/L.
  - i. Stains: VOC not more than 250 g/L.
  - j. Flat Interior Topcoat Paints: VOC not more than 50 g/L.
  - k. Nonflat Interior Topcoat Paints: VOC not more than 150 g/L.
  - l. Anticorrosive and Antirust Paints Applied to Ferrous Metals: VOC not more than 250 g/L.
  - m. Clear Wood Finishes, Varnishes and Sanding Sealers: VOC not more than 350 g/L.
  - n. Clear Wood Finishes, Lacquers: VOC not more than 550 g/L.
  - o. Floor Coatings: VOC not more than 100 g/L.
  - p. Shellacs, Clear: VOC not more than 730 g/L.
  - q. Shellacs, Pigmented: VOC not more than 550 g/L.
  - r. Stains: VOC not more than 250 g/L.
  - s. Primers, Sealers, and Undercoaters: VOC not more than 200 g/L.
  - t. Dry-Fog Coatings: VOC not more than 400 g/L.
  - u. Zinc-Rich Industrial Maintenance Primers: VOC not more than 340 g/L.
  - v. Pretreatment Wash Primers: VOC not more than 420 g/L.

- w. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
  - x. Restricted Components: Paints and coatings shall not contain acrolein, acrylonitrile, antimony, benzene, butyl benzyl phthalate, cadmium, di (2-ethylhexyl) phthalate, di-n-butyl phthalate, di-n-octyl phthalate, 1,2-dichlorobenzene, diethyl phthalate, diethyl phthalate, dimethyl phthalate, ethylbenzene, formaldehyde, hexavalent chromium, isophorone, lead, mercury, methyl ethyl ketone, methyl isobutyl ketone, methylene chloride, naphthalene, toluene (methylbenzene), 1,1,1-trichloroethane, or vinyl chloride.
3. Credit EQ 4.4: Do not use composite wood or agrifiber products or adhesives that contain urea-formaldehyde resin.

H. Construction Indoor-Air-Quality Management:

1. Credit EQ 3.1: Comply with SMACNA's "SMACNA IAQ Guideline for Occupied Buildings under Construction."
- a. If Owner authorizes use of permanent heating, cooling, and ventilating systems during construction period as specified in Division 1 Section "Temporary Facilities and Controls," install filter media having a MERV 8 according to ASHRAE 52.2 at each return-air inlet for the air-handling system used during construction.
  - b. Replace all air filters immediately prior to occupancy.
2. Credit EQ 3.2: Comply with one of the following requirements:
- a. After construction ends, prior to occupancy and with all interior finishes installed, perform a building flush-out by supplying a total volume of 14000 cu. ft. (4 300 000 L) of outdoor air per sq. ft. (sq. m) of floor area while maintaining an internal temperature of at least 60 deg F (16 deg C) and a relative humidity no higher than 60 percent.
  - b. If occupancy is desired prior to flush-out completion, the space may be occupied following delivery of a minimum of 3500 cu. ft. (1 070 000 L) of outdoor air per sq. ft. (sq. m) of floor area to the space. Once a space is occupied, it shall be ventilated at a minimum rate of 0.30 cfm per sq. ft. (1.52 L/s per sq. m) of outside air or the design minimum outside air rate determined in EQ Prerequisite 1, whichever is greater. During each day of the flush-out period, ventilation shall begin a minimum of three hours prior to occupancy and continue during occupancy. These conditions shall be maintained until a total of 14000 cu. ft./sq. ft. (4 300 000 L/sq. m) of outside air has been delivered to the space.

END OF SECTION 01352

Revision History	
Date	Rev. No.
02-19-09	0